

**WHAT IS CLAIMED IS:**

1. An apparatus, comprising:  
an acquisition unit for acquiring a data signal for a predetermined time;  
a memory for storing said data signal;  
5 a controller, including a memory for storing a software phase locked loop program, a processor for executing said software phase locked loop program, and recovering a clock signal from said stored data signal.
2. The apparatus of claim 1, wherein said processor further slices said stored data signal into a plurality of data segments of a predetermined length in accordance with  
10 said recovered clock signal, and overlays said plurality of data segments in a display memory for display in a time synchronized manner.
3. The apparatus of claim 1, wherein said processor further slices said stored data signal into a plurality of bit sequences of a predetermined length in accordance with said recovered clock signal, and overlays said plurality of data segments in a display  
15 memory for display in a time synchronized manner.
4. The apparatus of claim 1, wherein said processor further slices said stored data signal into a plurality of data segments of a predetermined length in accordance with a time interval error determination in order to generate said recovered clock signal.
5. The apparatus of claim 1, wherein said apparatus is included within an  
20 oscilloscope.
6. The apparatus of claim 1, wherein said data signal in accordance with said recovered clock are displayed on a display as one of an eye diagram and a mask function.
7. An oscilloscope comprising:  
an analog to digital converter for acquiring a data signal;  
25 an acquisition unit for acquiring a data signal for a predetermined time;  
a phase locked loop for recovering a clock signal from said stored data signal; and  
a display for displaying said data signal in accordance with said clock signal.
8. The oscilloscope of claim 8, wherein said phase locked loop comprises a  
30 software phase locked loop.

9. A method, comprising the steps of:
- acquiring a data signal by an acquisition unit of a test instrument for a predetermined time;
  - storing said data signal in a memory of said test instrument;
  - 5 recovering a clock signal from said stored data signal by adjusting the phase of said recovered clock signal in accordance with a determined error between a frequency of said acquired data signal and a frequency of said recovered clock signal;
  - slicing said stored data signal into a plurality of data segments of a predetermined length in accordance with said recovered clock signal; and
  - 10 displaying at least one of an eye diagram and a mask diagram in accordance with said plurality of data segments.